

## ABSTRACT

An amperometric glucose biosensor comprises a sensing electrode and a reference electrode arranged in a side-by-side parallel configuration on an electrically insulating sheet. A passive cover electrode is placed over the side-by-side sensing electrode and reference electrode so that the active surface of the passive cover electrode opposes the active surfaces of the side-by-side electrodes. Physical contact between the passive covering electrode and the side-by-side electrodes is prevented by insulating spacers. The sensing electrode comprises a conductive graphite track coated with a formulation comprising a redox mediator and enzyme and the reference electrode is a parallel track comprising an Ag/AgCl formulation while the passive cover electrode comprising a conductive graphite track coated with a formulation comprising the same redox mediator as used in the sensing electrode but not including an enzyme. An opening either located in the middle or at one side of the passive cover electrode allows a liquid test sample to be introduced into the sensor. The biosensor of the present invention exhibits a sensitivity and response time equal to or surpassing that of the simple face-to-face configuration while can be efficiently manufactured and permit use with conventional electrical connectors.